

REMARKS

Claims 1-42 were pending. Claims 1-42 stand rejected. Claims 1, 8-18, and 22-42 were amended. Claims 1-42 remain in the application.

The drawings were objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims. The office action stated:

'Therefore, the "image bearing article, comprising: a support; a visible image recorded on the support; and invisible information recorded on the support" (claims 1 and 22) must be shown or the feature(s) canceled from the claim(s).'

Claims 1 and 22 have been amended and now state:

"the visible image having a plurality of image pixels"

and

"the invisible information having a plurality of invisible data elements"

(see below for further discussion of these amendments).

The image pixels of the visible image (reference number 14) and the invisible data elements of the invisible information (reference number 16) are shown in Figure 1. (The article is designated by reference number 10 and the support by reference number 12.) The specification has been amended to expand the description of Figure 1. The added language is supported by the application as filed, notably, Figure 1, at page 4, lines 25-31, at page 1, lines 25-26, and page 4, lines 9-12. These changes overcome the objection to the drawings.

Incorrect dependencies have been corrected in Claims 11, 13-16, and 23-42.

Claims 8-11, 13-18, 22, 29, 32 and 34-37 stand objected to because of informalities. The claims have been amended to track the language of independent Claims 1 and 22. Claims 8, 9, 29, and 30 have been amended to replace "scene elements" with "respective image pixels". Claims 10 and 31 have been amended to replace "image element" with "each of the image pixels". Claims 11, 14-16, 32, and 35-37 were amended to replace "image" with "visible image". Claims 12 and 33 has been amended to change "elements" to "respective image pixels". Claim 42 has been amended to change "visible information" to "visible image".

In Claims 13 and 34, "the difference" has been changed to "a difference".

Claims 17-18 and 38-39 were amended to state "the {infrared or ultraviolet} region of the electromagnetic spectrum". (For support, see page 8, lines 12-15) The usages of ultraviolet region, infrared region, and electromagnetic spectrum, in these phrases, are definite and thus grammatically require use of the article "the".

Claims 22 and 40 have been amended to change "support" to "medium". (See the usage of "medium" in the second line of Claim 22.)

Claims 1-2, 6-11, 17, 19-23, 27-32, 38, and 40-42 stand rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al (US 5,337,361). The rejection stated:

"Re claims 1-2, 6-11, 17, 19-23, 27-32, 38 and 40-42: Wang et al discloses (figs. 1A-1D; col. 3, line 50 through col. 5, line 38) an image bearing article, comprising: a support 16; a visible image 17, which can be a graphic/computer generated image or a photograph, recorded on the support 16 (fig. 1; col. 3, line 52+); and invisible information 18 recorded on the support 16, the invisible information 18 relating to and in registration with elements of the visible image 17; wherein the invisible information 18 is detectable in the ultraviolet region of the spectrum (col. 3, lines 67+); wherein the article contains a temporal sequence of images (col. 5, lines 35+)."

Claim 1 has been amended to state:

1. An image bearing article, comprising:
 - a) a support;
 - b) a visible image recorded on the support, the visible image having a plurality of image pixels; and
 - c) invisible information recorded on the support, the invisible information having a plurality of invisible data elements, each said invisible data element relating to and being in registration with a corresponding one of the image pixels of the visible image.

Claim 1 is supported by the application as filed, notably, the original claims, page 4, lines 25-31, page 4, lines 9-12, and Figure 1.

Claim 1 requires that each of the invisible data elements of the invisible image relates to and is in registration with a corresponding pixel of the visible image. This is not disclosed or suggested by the cited reference. In Wang, the information is provided in at least two adjacent rows of code words. (Wang, col. 2, lines 40-42) The marks representing the code words are placed over the graphic image in a manner that does not obscure or distort the image. (Wang, col. 4, lines 1-3)

Claims 2, 6-11, 17, and 19-21 are allowable as depending from Claim 1 and as follows.

Claims 8-10 state:

8. The article claimed in Claim 1, wherein the invisible information is distance information relating to the respective image pixels.

9. The article claimed in Claim 1, wherein the invisible information is a classification of the respective image pixels.

10. The article claimed in Claim 1, wherein the invisible information is a difference between the each of the image pixels and a corresponding element in a separate image.

Each of Claims 8-10 calls for the invisible information to be of a particular type that relates to respective image pixels. Wang discloses presentation of information that relates to the image as a whole, at col. 4, lines 24-25.

Claim 11 is allowable as depending from Claim 10 and as follows. Claim 11 states:

11. The article claimed in Claim 10, wherein the visible image and the separate image comprise a stereo pair.

Claim 11 further requires difference information relates to a stereo pair: the visible image and a separable image. Where does Wang disclose a stereo pair or such difference information?

Claims 19-21 add additional features not apparent in a review of Wang.

Claim 22 is supported and allowable on the same basis as Claim 1.

Claims 23, 27-32, 38, and 40-42 are allowable as depending from Claim 22 and on the grounds discussed above in relation to Claims 2, 6-11, 17, and 19-21, respectively.

Claims 3-5, 12, 18, 24-26, 33, and 39 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al in view of Williams et al (US 6,610,386).

Claims 3-5, 12, 18, 24-26, 33, and 39 are allowable as depending from one of Claims 1 and 22 and as follows. Claims 12 and 33 both state:

"wherein the invisible information is an attribute of the color or exposure of the respective image pixels",

and are allowable on the grounds discussed above in relation to Claims 8-10.

Wang et al. and Williams, in any combination do not teach or suggest the claimed inventions.

Claims 13-16 and 34-37 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al in view of Rhoads (US 6,252,963). The rejection states:

"Wang et al have been discussed above but fails to teach or fairly suggest that the visible image is a constrained image and the invisible information represents the difference between the constrained image and an unconstrained version of the image.

"Rhoads teaches a constrained image and the invisible information represents the difference between the constrained image and an unconstrained version of the image (figs. 22-26 and 28; col. 3, lines 34-50; col. 58, line 64 through col. 63, line 22).

"It would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to incorporate the teachings of the teachings of Rhoads into the system as taught by Wang et al in order to provide Wang et al with a more secure system wherein a constrained image and related information on the card/medium can be verified readily with an unconstrained version of the image (i.e., digital image taken of customer)."

Claims 13 and 34 both require:

"wherein the visible image is a constrained image and the invisible information represents a difference between the constrained image and an unconstrained version of the image."

Rhoads alone and in combination with Wang et al. does not teach or suggest use of a visible image that is constrained and invisible information that is a difference

information relative to an unconstrained version of the visible image. Rhoads in the indicated sections teaches the use of a texturized "snowy" image over a raw visible image. (Rhoades, col. 60, lines 22-26) The snowy image is not a difference between a constrained version and an unconstrained version, but rather a modification of the raw image by placing in orthogonal patterns. (Rhoades, col. 60, lines 13-26)

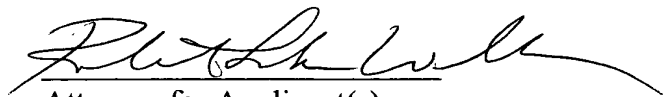
The snowy image of Rhoads is also more unique than the raw visible image. (Rhoades, col. 60, lines 22-26) This makes it unclear which of the two images, the rejection is arguing is constrained. The rejection cites a portion of Rhoades (col. 3, lines 34-50) that describes a digital signal as being constrained to exist at only a finite number of levels. (See Rhoades, col. 3, lines 43-48.) How would this constraint not be a feature of both the raw image and the snowy image?

Claims 14-16 and 35-37 are allowable as depending from Claims 13 and 34, respectively, and as requiring particular constraints.

It is believed that these changes now make the claims clear and definite and, if there are any problems with these changes, Applicants' attorney would appreciate a telephone call.

In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,


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